

REMARKS

By this Amendment, claims 1-15 are cancelled, and claims 16-31 are added. Thus, claims 16-31 are now active in the application. Reexamination and reconsideration of the application is respectfully requested.

The specification and abstract have been carefully reviewed and revised to correct grammatical and idiomatic errors in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the specification by the current amendment. The attachment is captioned "Version with Markings to Show Changes Made."

In paragraph 3 of the Office Action, the Examiner asserted that the title of the invention is not descriptive. Pursuant to the Examiner's requirement, the title of the invention has been changed to "AC Plasma Display Panel For Reducing the Emission of Electromagnetic Waves Generated by Display Electrodes and Conductors" so as to be clearly indicative of the invention to which the claims are directed.

In paragraph 5 of the Office Action, the Examiner rejected claims 1-15 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of Shino et al. (U.S. 6,320,326) in view of Yamada (U.S. 6,275,203). This rejection is believed to be moot in view of the cancellation of claims 1-15. Furthermore, it is respectfully submitted that this rejection is inapplicable to new claims 16-31 for the following reasons.

The present invention provides an alternating current (AC) plasma display panel having a

first substrate 8 and a second substrate 14 that are disposed facing each other to form a discharge space 18. At least one of the first substrate 8 or the second substrate 14 is transparent. A plurality of display electrodes are disposed over the first substrate 8 and arranged in rows, i.e., in a stripe pattern. Each display electrode comprises a scan electrode 10 and a sustain electrode 11. One or more conductors 12 are also disposed over the first substrate, and the conductors 12 adjoin a respective one of the display electrodes. A dielectric layer 9 is disposed over the first substrate 8 and covers the display electrodes and the conductors 12. Further, a plurality of data electrodes 15 are disposed over the second substrate 14 and are further disposed perpendicular to the display electrodes. A plurality of phosphors 17 are placed along the data electrodes 15, respectively. In another aspect of the present invention, a barrier 19 is disposed on the dielectric layer 9 such that the barrier 19 extends longitudinally approximately parallel with the conductors 12. In yet another aspect of the present invention, each of the conductors 12 is electrically connected to a respective one of a scan electrode 10 and sustain electrode 11 of a display electrode.

New claim 16 recites that a dielectric layer covers the display electrodes and the conductors, and that a barrier is disposed on the dielectric layer such that the barrier extends longitudinally approximately parallel with the conductors. Clearly, claims 1-8 of Shino et al. do not recite an alternating current (AC) plasma display panel comprising a dielectric layer covering the display electrodes and the conductors, or a barrier disposed on the dielectric layer such that the barrier extends longitudinally approximately parallel with the conductors, as is recited by new claim 16. Further, new claim 26 recites that at least one conductor is disposed over a first insulating substrate and that each conductor is electrically connected to a respective one of the

scan electrode and the sustain electrode. Clearly, claims 1-8 of Shino et al. do not recite an AC plasma display panel comprising at least one conductor disposed over a first insulating substrate wherein each conductor is electrically connected to a respective one of the scan electrodes and the sustain electrodes, as is recited by new claim 26. With regard to new claim 26, claims 1-8 of Shino et al. do not recite each conductor being electrically connected to one of the scan electrodes and the sustain electrodes. Shino et al., in claims 1 and 5, recites “means for applying a certain current to said scan and sustain electrodes...” while claim 8 recites “means for applying a certain current to each of said paired scan and sustain electrodes....” In accordance with the teachings of the specification of Shino et al., the means for applying a current to the scan and sustain electrodes are described as each scan or sustain electrode being electrically connected to a respective driving circuit. Specifically, the odd scan electrodes of Shino et al. are electrically connected with a scan electrode driving circuit 2a, the odd sustain electrodes are electrically connected with a sustain electrode driving circuit 3a, the even scan electrodes are electrically connected with a scan electrode driving circuit 2b, and the even sustain electrodes are electrically connected with a sustain electrode driving circuit 3b. (See Column 8, lines 28-41 and Figure 1). Accordingly, the “conductor” of Shino et al., as interpreted by the Examiner, is not electrically connected to a respective one of the scan electrodes and the sustain electrodes, as is recited by new claim 16.

The Examiner based his rejection of claims 1-15 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of Shino et al. in view of Yamada on the assertion that Yamada teaches that voltages applied to the scan electrodes and the sustain electrodes have opposite polarity. The Examiner thus concluded that it would have been

obvious to combine the teaching of the opposite polarity voltages as applied to the scan electrode and the sustain electrode of Yamada to the limitations recited in claims 1-8 of Shino et al. to arrive at the present invention as recited in claim 1. The feature for which Yamada was cited to assert that the present invention is unpatentable over claims 1-8 of Shino et al. in view of Yamada is no longer claimed in new claim 16. However, even without the limitation of an opposite polarity voltage being applied respectively to the scan electrode and sustain electrode, the present invention, as recited in new claims 16 and 26, is not unpatentable over claims 1-8 of Shino et al. in view of Yamada.

With regard to new claim 16, Yamada, like Shino et al., does not teach or suggest a barrier being disposed on a dielectric layer such that the barrier extends longitudinally approximately parallel with the conductors, as is recited in new claim 16. Further, with regard to new claim 26, Yamada does not teach or suggest a conductor being electrically connected to a respective one of the scan electrodes and the sustain electrodes. Instead, Yamada also teaches scanning electrodes 34 being connected to scanning drivers 42 and sustain electrodes 35 being connected to sustain drivers 44. (See Column 10, lines 21-39 and Figure 8).

Therefore, since neither Shino et al. nor Yamada teaches or suggests the recited limitations of claims 16 and 26, the Applicants respectfully submit that the present invention is not unpatentable over claims 1-8 of Shino et al. under the judicially created doctrine of obviousness-type double patenting in view of Yamada.

In paragraph 7 of the Office Action, the Examiner rejected claim 10 under 35 U.S.C. § 102(e) as being anticipated by Kanazawa et al. (U.S. 6,288,692). This rejection is respectfully traversed. The Applicants respectfully submit that new claim 26, which has been added in favor

of new claim 10, is not anticipated by Kanazawa et al., because Kanazawa et al. does not meet all the claim limitations of new claim 26. The Examiner rejected claim 10 in part by describing Kanazawa et al. as including a plurality of display electrodes 51 and 52o disposed over the first insulating substrate such that each display electrode includes a scan electrode 51 and a sustain electrode 52o. Further, the Examiner described Kanazawa et al. as further including at least one conductor 52e disposed over the first substrate approximately parallel with the display electrodes 51 and 52o, wherein each conductor 52e is coupled to the scan electrode 52o via pixel 56.

As described above, new claim 26 recites a conductor being electrically connected to a respective one of the scan electrodes and the sustain electrodes. In accordance with the Examiner's labeling of the elements, and in view of Column 10, lines 15-39 and Figures 13 and 14, Kanazawa et al. does not teach a conductor being electrically connected to one of the scan electrodes and the sustain electrodes. Instead, Kanazawa et al. teaches that "sustain electrodes" (Y electrodes) 51 are connected to a scan driver 62, "scan electrodes" (Xo electrodes) 52o are connected to an odd X sustaining circuit 61o, and "conductors" (Xe electrodes) 52e are connected to an even X sustaining circuit 61e. In other words, "scan electrode 52o" is electrically connected to X sustaining circuit 61o completely independent of "conductor 52e", "sustain electrode 51" is electrically connected to scan driver 62 completely independent of "conductor 52e", and "conductor 52e" is electrically connected to X sustaining circuit 61e completely independent of "scan electrode 52o" or "sustain electrode 51". Accordingly, Kanazawa et al. does not teach or suggest a conductor being electrically connected to a respective one of the scan electrodes and the sustain electrodes, as is recited by new claim 26. Thus, the Applicants submit that new claim 26 is not anticipated by Kanazawa et al.

The Examiner also rejected claims 11-12 and 14-15 under 35 U.S.C. § 103(a) as being unpatentable over Kanazawa et al. in view of Matsuzaki et al. (U.S. 5,939,828). Further, the Examiner relies on Kanazawa et al. in view of Moon (U.S. 6,344,841) or Shino et al. to reject claim 13 under 35 U.S.C. § 103(a). However, the Applicants respectfully submit that the collective teachings of Matsuzaki et al., Moon, or Shino et al. do not cure the deficiencies of Kanazawa et al. for failing to teach or suggest a conductor being electrically connected to a respective one of the scan electrodes and the sustain electrodes, as is recited by new claim 26.

In paragraph 9 of the Office Action, the Examiner rejected claims 1-6 under 35 U.S.C. § 103(a) as being unpatentable over Kanazawa et al. in view of Yamada. In addition, in paragraph 12, claims 7-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kanazawa et al. in view of Yamada and further in view of Matsuzaki et al. This rejection is traversed. The Applicants respectfully submit that new claim 16, which incorporates most of the limitations of cancelled claims 1 and 7 and which has been added in favor of cancelled claims 1 and 7, is not unpatentable over Kanazawa et al. in view of Yamada and further in view of Matsuzaki et al.

The Examiner relies on Kanazawa et al. to assert that Kanazawa et al. teaches a first and second insulating substrate being transparent, and a plurality of display electrodes 51 and 52o disposed over the first insulating substrate, wherein each display electrode is arranged in a row and includes a scan electrode 51 and a sustain electrode 52o. Further, the Examiner asserts that Kanazawa et al. teaches at least one conductor 52e disposed over the first substrate approximately parallel with the display electrodes, wherein each conductor 52e adjoins a respective one of the display electrodes because conductor 52e is “coupled to scan electrode 51 via pixel 56.” The Examiner further concluded that it would have been obvious to combine the

teaching of the opposite polarity voltages as applied to the scan electrode and the sustain electrode of Yamada to the teaching of Kanazawa et al. to arrive at the present invention as recited in claim 1. The feature for which Yamada was cited to assert that the present invention is unpatentable over Kanazawa et al. in view of Yamada is no longer claimed in new claim 16. However, even without the limitation of an opposite polarity voltage being applied respectively to the scan electrode and sustain electrode, the present invention as recited in new claim 16 is not unpatentable over Kanazawa et al. in view of Yamada, because neither Kanazawa et al. nor Yamada teach or suggest the present invention as recited in new claim 16.

As described above, new claim 16 recites a barrier being disposed on a dielectric layer such that the barrier extends longitudinally approximately parallel with the conductors. Neither Kanazawa et al. nor Yamada teach or suggest a barrier disposed on a dielectric layer wherein the barrier extends longitudinally approximately parallel with the conductors. Thus, the combination of Kanazawa et al. and Yamada fails to teach or suggest all the claim limitations of the present invention as claimed in new claim 16. The Examiner also admits that the combination of Kanazawa et al. and Yamada does not teach or suggest a barrier disposed over a dielectric layer between the display electrodes. For this feature, the Examiner looks to Matsuzaki et al., which the Examiner asserts as teaching “a barrier (110) formed disposed over dielectric layer (8) between display electrodes.” Thus, the Examiner concluded that “it would have been obvious to one of ordinary skill in the art at the [time] the invention was made to have used a barrier as taught by Matsuzaki to the plasma display panel of Kanazawa as modified by Yamada so as to simplify steps for forming barrier ribs and to suppress ion damage on a fluorescent layer.”

Matsuzaki et al. teaches a barrier rib 110 disposed on the first substrate 1, between display

electrodes 6, and over dielectric layer 8. Further, as seen in Figures 1(a)-(c) and 2(a)-(c) and in reference to column 7, lines 58-67 and column 8, lines 1-15, the barrier rib 110 of Matsuzaki et al. is arranged along fluorescent layer 12. Accordingly, barrier 110 is parallel to a phosphor. Further, by being parallel to a phosphor, as shown in Figures 1(a)-1(c) of Matsuzaki et al., barrier 110 is therefore perpendicular to display electrodes 6, because the fluorescent layer 12 is clearly shown in Figures 1(a)-1(c) to be perpendicular to the display electrodes 6.

New claim 16 of the present invention recites a barrier that extends longitudinally approximately parallel with the conductors. Further, because each of the conductors is defined to adjoin a respective one of the display electrodes as recited in new claim 16, the barrier of the present invention is therefore parallel, not perpendicular, to the display electrodes. Because the barrier extends longitudinally approximately parallel with the conductors, the barrier serves an important function to the present invention. Specifically, as is described on page 11 of the application, "due to barrier 19, an electric field in discharge space 18 between conductor 12 and scan electrode 10 in adjacent rows is remarkably weakened when a voltage is applied between conductor 12 and scan electrode 10. As a result, false discharge is further certainly prevented between rows, namely, between conductor 12 and scan electrode 10." Matsuzaki et al., however, does not teach or suggest a barrier that extends longitudinally approximately parallel with the conductors to weaken an electric field in a discharge space and to prevent false discharge between rows.

Accordingly, because Matsuzaki et al. teaches a barrier that is perpendicular, not parallel, to the display electrodes, Matsuzaki et al. does not teach or suggest a barrier disposed on a dielectric layer such that the barrier extends longitudinally approximately parallel with the

conductors. Therefore, the Applicants respectfully submit that the collective teachings of Kanazawa et al., Yamada, and Matsuzaki et al. do not teach or suggest every claim limitation of new claim 16.

The Examiner also rejected claims 2-6 under 35 U.S.C. § 103(a) as being unpatentable over Kanazawa et al. in view of Yamada. Further, the Examiner relied on Kanazawa et al. in view of Yamada, and further in view of Matsuzaki et al. to reject claims 7-8 under 35 U.S.C. § 103(a). Still further, the Examiner relied on Kanazawa et al. in view of Yamada, and further in view of Moon or Shino et al. to reject claim 9 under 35 U.S.C. § 103(a). However, the Applicants respectfully submit that the collective teachings of Matsuzaki et al., Moon, or Shino et al. do not cure the deficiencies of Kanazawa et al. for failing to teach or suggest a barrier disposed on a dielectric layer such that the barrier extends longitudinally approximately parallel with the conductors, as is recited by new claim 16.

Because of the clear distinctions discussed above, it is submitted that the collective teachings of the applied references do not meet each and every limitation of new claims 16 and 26. Therefore, it is respectfully submitted that new claims 16 and 26, as well as claims 17-25 and 27-31 which depend therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is respectfully solicited.

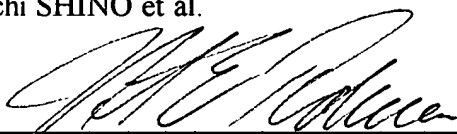
If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

A fee and request for a one month extension of time is filed herewith pursuant to 37 CFR

§ 1.136a.

Respectfully submitted,

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